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# Pre-anaesthetic assessment and preparation

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## Preanaesthetic preparation

- Why perform a clinical examination?
  - General anaesthesia carries a particularly high risk in horses
  - 1 in 100 healthy horses die within 7 days
  - Identify risks associated with the proposed procedure
  - And act on them before induction of general anaesthesia
  - Establish baseline parameters to refer to during the anaesthetic



## Pre-anaesthetic examination

- Considerations for anaesthesia
  - Patient history
    - Physical condition
    - Pain and stress
  - Anaesthetic risk
    - Categorisation
  - Size and weight of patient
  - Procedure to be carried out
  - Equipment & personnel available
  - Environment
  - Informed client consent





## Pre-anaesthetic examination

- Clinical examination
  - Full examination focusing on the cardiovascular and respiratory systems
  - NOT just the primary complaint
  - Beware of the presence of any pre-existing disease
  
- Determination of physical status allows
  - Classification of anaesthetic risk
  - Selection of appropriate drugs and protocols
  - Informed client consent



## Patient presentation

- Elective procedure
  - Planned sedation/anaesthesia
  - Treatment for any diagnosed conditions underway
- Emergency procedure
  - Colic surgery
  - Significant underlying disease
  - Examination and history are considered in respect to presenting complaint
  - Importance of stabilisation





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## History

- Long term history
  - Previous sedation/anaesthesia history
  - Exercise intolerance
  - Rhabdomyolysis
- Short term history
  - Abnormalities
    - Inappetance
    - Coughing
    - Nasal discharge
    - Noise at exercise





## History

- Age
  - Neonate, young, geriatric
- Analgesia
  - Assessment of current level of pain
  - How painful is the procedure likely to be?
- Current medications
  - Impact on anaesthetic protocol
- Current disease status
- Breed
- Gender – neutered?



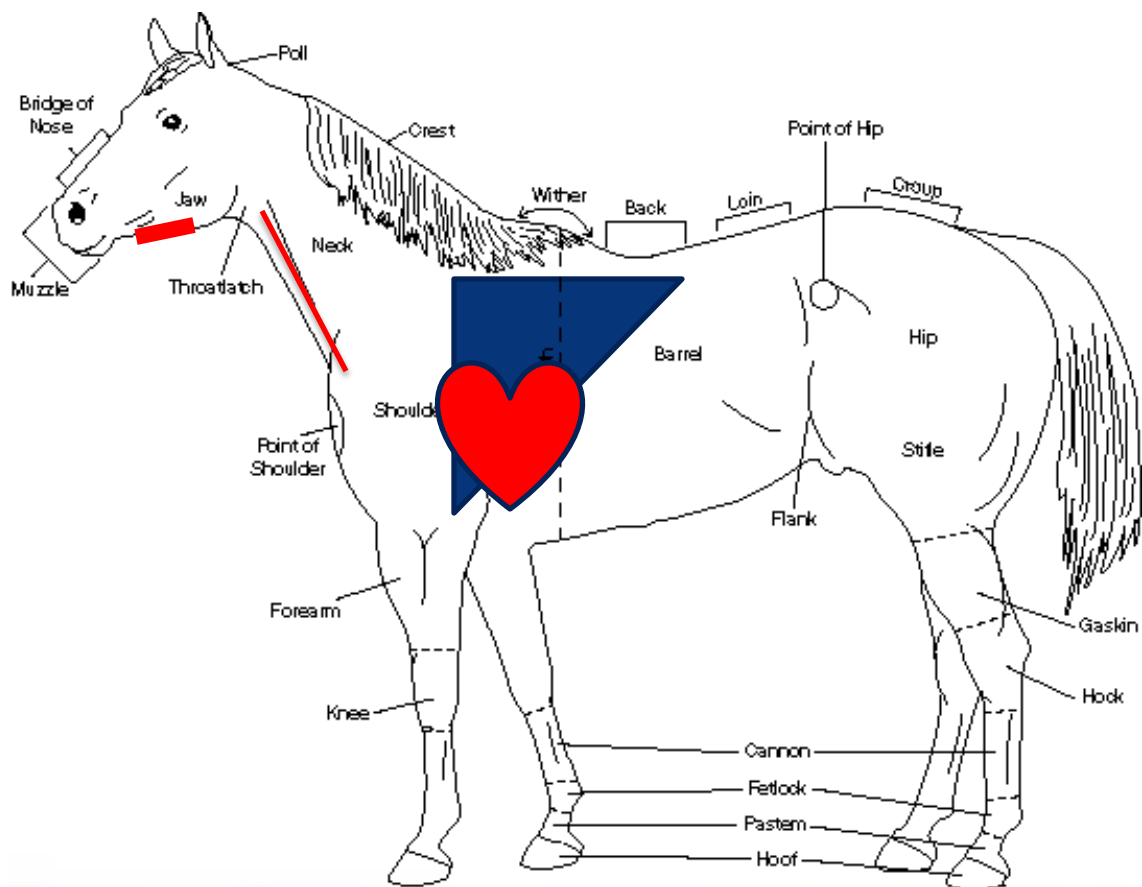
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# Clinical Examination





# Clinical Examination





## Clinical examination





## Clinical Examination

- General inspection of the patient
- Physical examination
  - Cardiovascular system
  - Respiratory system
  - Musculoskeletal system
  - Nervous system
- Allows a basis for selection of anaesthetic drugs and techniques





## Anaesthetic Risk

- American Society of Anaesthesiologists (ASA) scoring system
  - I Healthy
  - II Mild systemic disease
  - III Severe systemic disease
  - IV Severe systemic disease that is a constant threat to life
  - V Moribund or dying
- Clarifies anaesthetic risk of the patient
- Currently no validation in the horse, although widely used



## Ancillary Tests

- Laboratory tests
  - Pre-anaesthetic blood tests?
    - Screening tests
    - PCV/TP
- Exercise tolerance tests
  - Used to detect non-clinical disease
- Radiography





# Pre-medication

## Provides

- Sedation
- Analgesia

## Aims

- Reduces anaesthetic agent requirement at induction
- Facilitate a smooth induction and recovery
- Improve ease of handling



## Pre-medication

- Routes of drug administration
  - Intravenous
    - Quick onset of action
    - Predictable outcome
  - Intramuscular
    - Slower onset of action
    - Less predictable effect
- Temperament of patient
- Ease of handling
- Staff available



# Pain Management

- Pre-emptive analgesia
- Multi-modal therapy
- Importance of reassessment
- Pain assessment
  - Always use additional analgesia if you think the patient is in pain



# Stress

- The stress response
  - Increases in sympathoadrenal and neuroendocrine activity
- AIM
  - To maintain or restore homeostasis
- A result of both acute and chronic pain
- Sickness syndrome
  - ‘Untreated pain’
- Extreme form – ‘Distress’



# Pre-medication

- Drug selection
  - Sedation
    - Acepromazine
    - Alpha-2 adrenoreceptor agonist drugs
  - Analgesia
    - Opioid analgesia
    - Non-steroidal anti-inflammatory drugs (NSAIDs)
  - Antibiosis
  - Tetanus status



## Sedation

- Phenothiazines
  - Acepromazine
  - 0.02-0.04mg/kg im 60min before induction
  
- Alpha-2 adrenoreceptor agonists
  - Detomidine 10-20 ug/kg iv
  - Xylazine 1mg/kg iv
  - Romifidine 80 ug/kg iv





# Analgesia

- Opioid analgesics
  - Butorphanol \*
    - Analgesic dose 0.05-0.1mg/kg
    - Sedative dose 0.02-0.05mg/kg
    - Used for both analgesia and as part of a sedative combination
  - Buprenorphine
  - Morphine
  - Methadone
- Difficulty in obtaining opioids





## Analgesia

- NSAIDs
  - Flunixin meglumine
  - Carprofen
  - Ketoprofen
  - Phenylbutazone





## Antibiosis

- Route of administration
  - Intravenous
  - Intramuscular
- Choice of antibiotic dependent on surgical procedure
- Avoid administration during anaesthesia if possible





# Tetanus

- Protection required if vaccination status unknown
- Tetanus antitoxin (TAT)
- Tetanus toxoid





## Preparation

- Intravenous catheter placement
- Surgical site preparation
- Patient preparation
- Bodyweight measurement
  - Weigh scales
  - Weigh tapes





## Intravenous catheter placement

- Sterile procedure
  - Choose site for catheter placement
  - Clip hair
  - Sterile preparation of the skin
  - Local anaesthesia of skin and subcutaneous tissue
  - Skin 'cut down'
  - Catheter introduced 'up' or 'down' the vein
  - Extension set with bung/3-way tap fitted
  - Catheter and extension set sutured to the skin
  - Confirmation of catheter placement within the vein
- Catheter care
  - Patency of catheter and vein
  - Cleanliness





# Intravenous catheters





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## Patient Preparation

- Starvation period
- Grooming
- Removing shoes
- Washing out mouth
- Appropriate head collar fitting



## Preparation

Finally decide upon

- Induction protocol
- Standing sedation
- General anaesthesia





# Standing Sedation





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# General Anaesthesia





## Conclusions

- Collect a history
- Carry out a thorough clinical examination
- Prepare the patient for anaesthesia
- Classify the anaesthetic risk of the patient to allow
  - Pre-medication
  - Sedation
  - And finally induction of general anaesthesia



I would like to thank  
Matthew Gurney

